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AUTHOR	Breeding, James Demps; And Others
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ABSTRACT

A study was conducted to: (1) determine the characteristics of Macon County manufacturing milk producers and their farms; (2) find out which research verified, recommended manufacturing milk production practices were being used by those in the different butterfat production thirds; and (3) try to establish which factors were influential in producer adoption of the practices. A random sample of 60 producers of the population of 571 was personally interviewed. A profile of the average Macon County manufacturing milk producer was compiled, and statistics concerning the adoption of practices relating to breeding and herd replacement, record keeping and use, feeding and feed production, health and sanitation, and general management were compiled. A comparison of the average high and low producer revealed that the former: (1) was slightly older; (2) was better known to the interviewer; (3) had about 39 percent greater income; (4) had considerably higher per cow butterfat and milk production averages for 1965; and (5) had 10 acres more cropland. A comparison of adoption practices showed that high producers had higher ratings on 17 of 23 practice studies and tended to feed a slightly higher protein ration and that fewer high producers had hay ground. "The regular income" was rated first by 88 percent among things liked about the occupation. Statistics on non-adoption and sources of dairying information were also compiled. (Author/KM)

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A Research Summary of a Graduate Study

MOTIVATIONS OF MACON COUNTY, TENNESSEE,

MANUFACTURING MILK PRODUCERS

James Demps Breeding, William M. Miller,
Cecil E. Carter, Jr. and Robert S. Dotson

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MOTIVATIONS OF MACON COUNTY, TENNESSEE,

MANUFACTURING MILK PRODUCERS

by

James D. Breeding, William M. Miller,

Cecil E. Carter, Jr. and Robert S. Dotson

December 1968*

ABSTRACT

The purposes of this survey-type study were: 1) to determine the characteristics of Macon County manufacturing milk producers and their farms; 2) to find out which research-verified recommended manufacturing milk production practices were being used by those in the different butterfat production thirds; and 3) to seek to establish which factors were influential in producer adoption of the practices. A random sample of 60 producers of the population of 571 was drawn and personally interviewed and comparative analyses were made.

The findings revealed that the average Macon County manufacturing milk producer in 1965 had the following characteristics: (1) was approximately 52 years of age; (2) had completed 7.5 years of schooling; (3) was generally friendly toward the interviewer; (4) reported a gross family income of $6,348; (5) milked 14 cows and produced 3,386 pounds of milk and 207 pounds of butterfat; (6) operated 157 total acres of farm having 96 acres in cropland; (7) kept 8 replacement heifers; (8) did his own milking and sold milk in cans; and (9) was found not to have a silo.

*Date of completion of three related M.S. degree problems in lieu of thesis by James D. Breeding.

When the average of the high and low producers was compared, it was found that the former: (1) was slightly older; (2) was better known to the interviewer; (3) had about 39 percent greater income; (4) had considerably higher per cow butterfat (182 pounds) and milk (3,606 pounds) 1965 production averages, and (5) had 10 acres more cropland.

Findings also revealed that most manufacturing milk producers in Macon County in 1965 were using the following practices: (1) five of the six practices related to breeding and herd replacement; (2) only two of the four practices related to record keeping and use; (3) three of the seven practices related to feeding and feed production; (4) two of three practices related to health and sanitation; and (5) all of the three other practices related to general management that were listed.

A comparison of the high and low producers showed that high producers: (1) had higher ratings on 17 of 23 separate practices studies; (2) tended to feed a slightly higher protein ration; (3) fewer had hay ground.

Also, it was noted that: (1) the larger herds showed the highest management levels; (2) younger dairymen tended to have a slightly higher practice diffusion rating than older ones; (3) less than 20 percent of the dairymen were freshening cows in the fall; and (4) dairymen who were better educated tended to manage better.

Of the things liked most by manufacturing milk producers, "the regular income" was rated first by 88 percent of the dairymen. "Confinement" was the greatest dislike mentioned by the producers.

Respondents felt that recommended production practices most often are not adopted because the cost outweighs the possible benefits, the facilities are not suited and because more rewarding activities claim the owner's time and money.

The milk plant fieldman was rated as first choice as a source of dairying advice by 97 percent of the dairymen. The County Agent was listed by 92 percent of all dairymen as their second source of additional useful information. Eighty-eight percent of the respondents listed radio and television as their third best sources of additional information. High producers were found to be seeking more advice than the low.

Suggestions were made for the use of the findings of the study in future Extension work related to dairying in Macon County.

RESEARCH SUMMARY*

I. PURPOSES

The purposes of this investigation were threefold, namely: 1) to determine some of the characteristics of high, medium and low butterfat manufacturing milk producers in Macon County, Tennessee; 2) to identify recommended milk production practices they were using; and 3) to ascertain which factors appeared to be influencing adoption of the practices.

II. METHODS USED

A random sample of 60 manufacturing milk producers was selected and interviewed from among the 571 who sold milk in the county in 1965-66. Butterfat production records provided by the manufacturing milk buyer in Lafayette were then used to determine which production third producers were to be assigned. Twenty producers each fell in the high group (selling 24-78 pounds per cow), medium group (selling 104-159 pounds per cow) and low group (163-364 pounds per cow).

Producers were questioned concerning the use of 23 recommended production practices, and as a result, were given dairy production

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*James Demps Breeding, Extension Leader, Macon County, University of Tennessee, Agricultural Extension Service, Lafayette, Tennessee.

William M. Miller, Associate Professor, Extension Dairying Department, University of Tennessee, Agricultural Extension Service, Knoxville, Tennessee.

Cecil E. Carter, Jr., Associate Professor, Agricultural Extension Education Section, University of Tennessee, Agricultural Extension Service, Knoxville, Tennessee.

Robert S. Dotson, Professor and Head, Agricultural Extension Education Section, University of Tennessee, Agricultural Extension Service, Knoxville, Tennessee.

management practice diffusion ratings ranging from 0, "unaware," to 5, "using." Average practice diffusion ratings were established for all producers for the three production groups. The practice diffusion ratings were used in comparing the management levels of high, medium, low, and all producers in relation to: (1) production; (2) stage in the diffusion process; (3) herd size; (4) age; (5) educational level; (6) size of farm; (7) occupation; (8) source of income; (9) sex; (10) gross family income; (11) herd ratings; and (12) interest in improving their dairy management.

In addition to information regarding the 23 recommended practices, other data were obtained regarding breeding and feeding practices. For example, questions were asked to reveal methods used for breeding heifers and types of bulls (dairy or beef) used on heifers and cows.

Feeding information obtained in addition to that included in the 23 recommended practices had to do with: (1) the percent of protein in the dairy ration; (2) methods of providing concentrates; (3) whether hay was ground or not; (4) types of hay fed; (5) method of supplying salt and minerals; and (6) the storage capacity available for silage.

Information regarding management practices of manufacturing milk producers, especially comparative information between low and high producers in Tennesseee was limited to a single study. Also, a study in Virginia, one in Mississippi, and a mail-out questionnaire in Tennessee to twenty-five milk plants gave some additional information relative to practices used and not used by dairymen elsewhere. No previous study of this type had been conducted in Macon County.

III. REVIEW OF LITERATURE

A review of other studies revealed the following general points:

1. Farmers tend to adopt new ideas or practices at different times.

2. They tend to be at different stages in the adoption process on the same and different practices at any one time.

3. Mass media sources are more important at the awareness and interest stages.

4. Neighbors and friends are more important than mass media at the evaluation and trial stages.

5. Personal contact becomes of greater value in the more advanced stages of the adoption of practices.

6. Agricultural agencies' representatives are influential in helping to affect individuals who are closest to the adoption of practices.

IV. MAJOR FINDINGS

Regarding Characteristics of Manufacturing Milk Producers and Farms

Findings listed below were revealed concerning the characteristics of manufacturing milk producers in Macon County who produced in the high, medium and low thirds, according to the average pounds of butterfat produced per cow in 1965.

1. The 60 producers averaged 3,386 pounds of milk and 207 pounds pounds of butterfat per cow in 1965, milk from the high producers' cows being triple the amount from the low producers' cows, on the average.

2. The average formal educational level was 7.5 years, with the high third of producers having 1.4 years more schooling than those in the low third.

3. The average age of the producers was 51.7 years, the high producers averaging 52.5 years of age and the low producers 51.5.

4. About 90 percent of the producers were known by the interviewer, "very" or "fairly well," with 55 percent of the high producers known "very well" compared to only 5 percent of the low producers.

5. Most producers had a friendly attitude toward the survey.

6. The average gross family income was $6,348, with the high group averaging $7,428, while the low producers averaged $5,400.

7. Eighty-eight percent of the producers were classified as full-time farmers, with 50 percent of the 60 producers receiving the major portion of their income from manufacturing milk sales.

8. About three-fourths of the manufacturing milk producers were raising some replacement heifers to continue their dairy herds.

9. The dairymen interviewed had averages of 157 acres of total farm land and 96 acres of cropland, high producers averaging 28 acres of total land and 32 acres of cropland more than the low producers.

10. The dairymen interviewed had an average herd size of 14 cows, the high and low producers herd size being equal.

11. Forty-five of the producers out of 60 kept registered heifers, high producers keeping heifers averaging five kept, and low producers only three.

12. About 25 percent of the producers (mostly low and medium) were using stables or hallways to milk in, rather than stanchions or elevated stalls.

13. Eleven producers had and were using silos.

Regarding Use of Recommended Manufaturing Milk Production Practices

The following is a brief summary of the major findings as related to production and management practices of manufacturing milk producers in Macon County. (See Table 1, Appendix)

1. The high producers showed a higher average practice diffusion rating than did the low producers on 17 of the 23 practices considered.

2. The high producers had ratings of .75 diffusion points, or more, greater than the low producers in the following six practices: (a) artificially inseminated one-half or more of cows; (b) all cows bred to same breed bull; (c) 75 percent of cows fall freshened; (d) calves vaccinated for brucellosis, etc.; (e) milking system checked every 6 months; (f) adequate supply of silage provided.

3. On the average, 40 percent of the producers interviewed had not ever tried recommended practices studied; while 57 percent were "using" the practices.

4. Thirteen percent or fewer were using the following practices: (a) adequate milk records kept; (b) fed cows according to production; and (c) an adequate supply of high quality silage provided.

5. Less than one-third of the dairymen were freshening cows in the fall--this practice being debatable value for manufacturing milk producers in recent years.

6. Nearly one-half (46 percent) were not ever interested in the practice of "feeding according to production."

7. While 40 percent of the high producers were using beef bulls to breed heifers and 35 percent were using them on cows, comparable percents for low producers were 65 percent of each.

8. High producers tended to feed a slightly higher protein ration than those in the other two groups.

9. Sixty percent of the low and medium producers and only 25 percent of the high producers followed the unprofitable practice of grinding hay.

10. Older dairymen tended to have a slightly lower practice diffusion rating than younger ones.

11. Dairymen with higher levels of education tended to have higher practice diffusion ratings, at least to the 12th grade level.

12. The practice diffusion ratings tended to increase with increases in size of farm (in acres) and in gross family income (in dollars).

13. Producers showing greater interest in improving herd management tended to have higher average adoption ratings.

Regarding Factors Influencing Practice Adoption by Producers

1. Of the thing liked most by manufacturing milk producers, "the regular income" was rated first by 88 percent of the dairymen.

2. Confinement was the greatest dislike mentioned by 57 percent of the producers interviewed, little difference being noted in the three production groups.

3. Manufacturing milk producers interviewed felt that recommended production practices most often are not adopted because "more rewarding activities claim owner's time and money" (77 percent reporting), "facilities are not suited" (74 percent), and "cost of practices outweighs possible benefits" (48 percent reporting).

4. Only 10 percent of respondents felt dairymen don't adopt practices thinking that the recommended practices were not sound.

5. Thirty-eight percent of the producers interviewed (50 percent of the low and 30 percent of the high) felt that "lack of technical knowledge needed" was the reason dairymen did not adopt practices.

6. "Milk plant fieldman was rated in first choice, according to frequency of mention, when producers reported persons from whom advice was sought, 97 percent reporting.

7. Nearly all producers (88 percent each) listed radio and television most frequently as sources of additional useful dairying information. The high group reported 90 percent compared to 85 percent for the low group in their listings of these sources of additional information first.

8. Eighty-two percent of the dairymen rated farm magazines as their third best source of information, 90 percent of the high and 75 percent of the low reporting.

9. The interviewer was either unfamiliar or not very familiar with 32 percent of the producers' dairy situations.

10. In the interviewer's opinion, most of the manufacturing milk producers interviewed (83 percent) should pay more attention to the management of their dairy herd.

V. IMPLICATIONS

Some of the implications that can be drawn from the findings are:

1. The characteristic differences between high and low producers should be studied in planning educational programs for Macon County dairymen.

2. The data indicated a definite relationship between recommended practice adoption and level of production verifying the fact that many recommended practices were, in the main, not being used.

3. The bundles of practices relating to record keeping and feeding offer an educational challenge in Extension work with all producers.

4. Eighty-eight percent of the dairymen sold manufacturing milk for the regular income, though more than one-half did not like confinement; therefore, it is assumed that the majority would be interested in increasing their net income.

5. Careful consideration should be given to the important reasons given by respondents concerning why dairymen often do not adopt recommended dairy production practices.

6. Producers who felt that there was a need for more technical knowledge should be contacted concerning such opportunities as the dairy farm management week.

7. The importance of working closely with the milk plant fieldman should not be overlooked as an avenue for encouraging producers to adopt recommended practices.

8. Attempts should be made to contact the manufacturing milk producers through the various sources of information they indicated using most.

9. Manufacturing milk producers in Macon County should be familiarized with selected findings of this study.

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Table 1. AVERAGE DAIRY MANAGEMENT PRACTICE DIFFUSION RATING AND TOTAL AVERAGE RATING FOR ALL MACON COUNTY DAIRYMEN INTERVIEWED, HIGH, MEDIUM AND LOW PRODUCERS*

Dairy Management Practice	All Dairymen Average Rating	High Producers Average Rating	Medium Producers Average Rating	Low Producers Average Rating
1. Artificially inseminated 1/2 or more of cows	3.42	4.05	3.20	3.00
2. All cows bred to same breed bull	3.38	3.85	3.30	3.00
3. 60-day dry period provided cows	4.98	5.00	4.95	5.00
4. 12-14 month calving period provided	4.98	5.00	4.95	5.00
5. 75 percent cows fall freshened	2.70	3.50	2.60	2.00
6. 75 percent herd replacements raised	3.62	4.00	3.40	3.45
7. Adequate milk records kept	1.68	2.05	1.40	1.60
8. Fed cows according to production	2.10	2.40	1.85	2.05
9. Adequate herd records kept	3.75	3.85	4.00	3.40
10. Calves permanently identified	3.48	3.90	2.80	3.75
11. Adequate supply of silage provided	1.82	2.10	1.45	1.10
12. High quality silage provided	1.65	1.90	1.40	1.65
13. Silage supplemented with enough hay	2.83	2.40	3.20	2.90
14. High quality hay provided	4.20	4.55	3.95	4.10
15. Hay and/or silage provided on pasture	4.78	4.75	4.80	4.80
16. Adequate improved pasture provided	5.00	5.00	5.00	5.00
17. Sufficient summer pasture provided	2.30	2.30	2.15	2.45
18. Strip cup always used	2.60	2.90	2.45	2.45
19. Separate feeding and loafing areas provided	4.82	5.00	4.55	4.95
20. Flies systematically controlled	4.97	5.00	4.95	4.95
21. Milking system 6-month checked	3.67	4.35	3.45	3.20
22. Professional advice obtained	4.60	4.85	4.40	4.55
23. Calves vaccinated for brucellosis, etc.	4.00	4.45	3.85	3.70
Actual Total Average Rating	3.54	3.79	3.39	3.43

*In the rating scale used: 0 = unaware of the recommended practice; 2 = interested in the practice; 3 = planning to try the practice; 4 = tried the practice but not using; and 5 = using the practice.

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